

INCH-POUND

ATPD-2262A
30 August 2006
SUPERSEDING
ATPD-2262
1 May 2000

PERFORMANCE PURCHASE DESCRIPTION

BERM LINER ASSEMBLIES

1. SCOPE

1.1 Scope. This specification covers five sizes of berm liner assemblies for use as secondary containment systems with collapsible fabric fuel tanks. Each berm liner assembly shall consist of a berm liner, and associated valves, drains, and hoses.

1.2 Classification. Berm liners shall be classified as one of the following sizes and are for use with the following tanks as specified (see 6.2).

Size I	–	For use with one 3,000 gallon collapsible fabric fuel tank.
Size II	–	For use with one 10,000 gallon collapsible fabric fuel tank.
Size III	–	For use with one 20,000 gallon collapsible fabric fuel tank.
Size IV	–	For use with one 50,000 gallon collapsible fabric fuel tank.
Size V	–	For use with one 210,000 gallon collapsible fuel tank (or for use with two 50,000 gallon collapsible fuel tanks associated with the Inland Petroleum Distribution System.)

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR/D210 by letter.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are Department of Defense (DoD) adopted are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) cited in the solicitation. Unless otherwise specified, the issues of documents not in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

- | | |
|-----------|---|
| A-A-52557 | - Fuel Oil, Diesel; For Posts, Camps and Stations |
| A-A-59326 | - Coupling Halves, Quick-Disconnect, Cam-Locking Type |

MILITARY

- | | |
|---------------|--|
| MIL-DTL-83133 | - Turbine Fuels, Aviation, Kerosene Types, NATO F-34 (JP-8), NATO F-35, and JP-8 +100 |
| MIL-PRF-370 | - Performance Specification, Hose and Hose Assemblies, Nonmetallic, Elastomeric, Liquid Fuel |

STANDARDS

FEDERAL

- | | |
|-------------|--|
| FED-STD-595 | - Colors used in Government Procurements |
|-------------|--|

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents. The following other Government purchase description forms a part of this document to the extent specified herein. Unless otherwise specified, the issue is that cited in the solicitation.

PURCHASE DESCRIPTION

NONE

(Copies of this purchase description are available from the US Army Tank-automotive and Armaments Command, Warren, MI 48397-5000.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

- AATCC 111 - Weather Resistance of Textiles (DoD Adopted)
- AATCC 30 - Antifungal Activity, Assessment on Textile Materials: Mildew and Rot Resistance of Textile Materials (DoD Adopted)

(Copies can be obtained from the American Association of Textile Chemists and Colorists, P.O. 12215, Research Triangle Park, NC 27709-2215.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM D 413 - Rubber Property - Adhesion to Flexible Substrate (DoD Adopted)
- ASTM D 471 - Rubber Property - Effect of Liquids (DoD Adopted)
- ASTM D 750 - Rubber Deterioration in Carbon-Arc Weathering Apparatus (DoD Adopted)
- ASTM D 751 - Coated Fabrics (DoD Adopted)
- ASTM D 1149 - Rubber Deterioration - Surface Ozone Cracking in a Chamber (DoD Adopted)

(Copies can be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

- ANSI/ASQC Z1.4 - Sampling procedures and Tables for Inspection by Attributes (DoD Adopted)

(Copies can be obtained from the American Society for Quality Control, 611 East Wisconsin Avenue, Milwaukee, WI 53202.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Description. The berm liner assembly shall consist of a liner, with attached handles, drain assemblies, hose assemblies, valve assemblies, and repair kits. The berm liner assembly shall be compatible for use with rainwater and fuels in accordance with A-A-52557 (diesel fuel), MIL-DTL-5624 (JP-5), ASTM D 910 (Aviation Gasoline), and MIL-DTL-83133 (JP-8).

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.2.

3.3 Materials. The materials of construction are the responsibility of the contractor. The materials shall be of sufficient capability to meet or exceed all operational and environmental requirements as specified herein (see 3.6). The components, pieces and parts incorporated in the berm liners shall be newly fabricated from recovered materials (6.4.1) to the maximum extent practicable. Used, rebuilt or re-manufactured components, pieces and parts shall not be incorporated in the berm liners.

3.4 Berm liner assemblies.

3.4.1 Berm liner. The berm liner will conform to the dimensions labeled in figure 1 to ensure proper interface with the listed collapsible fabric tanks and berm wall dimensions.

3.4.2 Handles. The handles shall be fastened to the berm liner. The bonds between each handle and the berm liner shall be capable of withstanding a load of 500 pounds without damage in accordance with 4.5.12. Handles shall be located on the perimeter of the berm liner as shown on figure 1 at intervals not greater than four feet on all four edges.

3.4.3 Drain assembly. A drain assembly shall be provided with each berm liner to remove rainwater and any fluid that may have leaked from the storage tank. The drain assembly shall have a 2.00-inch ID and a strainer to collect debris. The drain assembly shall be compatible and interface with the female end of the hose assembly specified in 3.4.4. The berm liner shall have two drain fittings and shall come with an installed blind flange on each of the drains for quick deployment where drains are not required or desired. Spare drain gaskets shall be provided with berm liner. Location of the drains is shown on figure 1.

3.4.4 Hose assembly. Each berm liner shall be furnished with two 20-foot x 2-inch ID hose assemblies. Each hose assembly shall be in accordance with MIL-PRF-370. One hose assembly shall be compatible and interface with the drain fitting specified in 3.4.3 and the female fitting of the valve assembly specified in 3.4.5. The other hose assembly shall have male and female ends in accordance with A-A-59326, Class 1, 2-inch. Each hose assembly shall be provided with dust cap and dust plug attached and respectively in accordance with A-A-59326 (where applicable), Type IX, Class 1, 2-inch and A-A-59326, Type IX, Class 1, 2-inch. Each hose assembly shall be provided with dust covers installed and with no assembly required.

3.4.5 Valve assembly. Each berm liner shall be furnished with one 2-inch valve assembly suitable for use with fuel or water. The valve shall be rated at a working pressure of 125 psig or higher. The valve shall be permanently labeled to indicate the direction of operation (open, close). The terminating ends of the valve fittings shall be one male and one female quick-disconnect fitting in accordance with A-A-59326, Class 1, 2-inch. The valve assembly shall be provided with dust cap and dust plug attached and respectively in accordance with A-A-59326, Type IX, Class 1, 2-inch and A-A-59326, Type IX, Class 1, 2-inch. The valve assembly shall be capable of interfacing with the hose assembly specified in 3.4.4. The valve assembly shall be provided with dust covers installed and with no assembly required.

3.5 Performance characteristics.

3.5.1 Deterioration prevention and control. Each component of the berm liner assembly shall be fabricated from compatible materials. The contractor shall certify that these materials to

be inherently corrosion resistant or treated to provide protection against the various forms of corrosion or deterioration when exposed to the environmental conditions as specified in 3.6. The berm liner material shall not promote deterioration of nitrile, urethane, or epichlorohydrin tanks under normal operating conditions.

3.5.2 Coated fabric. The coated fabric shall be free from blisters, pinholes, or holidays (see 6.4) and shall show no signs of coating delamination. The coated fabric shall conform to the requirements in table I.

3.5.3 Seams. All berm liner seams shall conform to the requirements of table II. Each panel shall have no more than one splice. Splices shall not coincide with a splice in the adjacent panel. Seams and splices shall not coincide with drain assemblies.

3.6 Environmental conditions.

3.6.1 Storage. The berm liner and components shall withstand a storage environment with an ambient temperature range of -25 °F to 160 °F, without damage.

3.6.2 Temperature. The berm liner and components shall be suitable for operational use at ambient temperatures from -25 °F to 130 °F.

3.6.3 Deleted.

3.7 Color and finish. Unless otherwise specified, the color of the berm liner assembly shall be in accordance with FED-STD-595, color chip 33446 (sand matte), general match. Metallic parts shall not have a highly polished finished, but shall be non-reflective with a dull finish

3.8 Identification marking. The berm liner shall be permanently marked with an identification label. The location of the identification label shall be in accordance with figure 1. The identification label shall contain the following information using letters of 1-inch (minimum) height:

BERM LINER (specify type)

Size (specify; see 1.2)

NSN: (specify)

For use with (specify tank size in gallons)

Manufacturer (specify)

Manufacture date (specify month and year)

Contract No. (specify)

Lot & Serial No. (specify)

Uncrated weight (specify in pounds)

3.9 Field Repair Kits.

3.9.1 Emergency Field Repair Kit. Unless otherwise specified (see 6.2), each tank assembly shall include an emergency field repair kit to perform on site repairs. The repair kit shall include replacement O-rings, gaskets and fasteners as applicable. Kit shall include all necessary tools to complete field repairs.

3.9.2 Permanent Field Repair Kit. Unless otherwise specified (see 6.2), each tank assembly shall include a permanent field repair kit to perform on site repairs. If this repair kit cannot withstand the environmental service life or the storage life (as specified in 3.5.4 and 3.5.5), it shall be made available through the technical manual that accompanies the tank assembly.

TABLE I. Characteristics of coated fabric.

Test Property	Requirements	Test Methods		
		ASTM	AATCC	PRFM Para
Tear strength: (Warp & fill lb, min)	75	D 751, procedure B		4.5.1
Breaking Strength: (Warp & fill lb/in, min)	300	D 751, procedure B		4.5.1
Weather resistance (see 6.3): 1500 hrs exposure & 5% elongation, warp & fill: Breaking strength retention (% , min)	80	D 750	111, option A	4.5.2
Fungus resistance:	No cracking, blistering or delamination		30	4.5.3
Breaking strength retention (% , min)	60			
Low temperature crease resistance: Appearance	No cracking, peeling, or delamination under 7X lens			4.5.4
Blocking:	Separate within 5 seconds			4.5.5
Ozone resistance	No cracks under 7X lens	D 1149		4.5.6
Coating adhesion: Initial (lb/in, min) After fuel immersion for 14 days at 160 °F (lb/in, min)	15 10	D 413 machine method D 471		4.5.7 & 4.5.7.1
After immersion in water at 160 °F				

for: 14 days (lb/in, min) 42 days (lb/in, min)	10 8	D 471		
Puncture resistance: (lbs, min)	110	D 751		4.5.8
Diffusion rate: (fl oz/sq ft/24 hr, max)	0.10			4.5.9

TABLE II. Characteristics of seams.

Test Property	Requirements	Test Method	
		ASTM	Para
Breaking strength: Initial (lb/in, min)	300	D 751, procedure B	4.5.7
After fuel immersion for 14 days at 160 °F (lb/in, min)	40% of initial obtained breaking strength value	D 471	4.5.7 & 4.5.11
After immersion in water at 160 °F for: 14 days (lb/in, min)	80% of initial obtained breaking strength value	D 471	4.5.7 & 4.5.11
42 days (lb/in, min)	40% of initial obtained breaking strength value		
Dead load shear resistance under 50 lb/in stress at 180 °F for 8 hrs:	0.125 in slippage (max)		4.5.8
Seam peel adhesion: Initial (lb/in, min)	15	D 413, machine method	4.5.7
After fuel immersion for 14 days at 160 °F (lb/in, min)	10	D 413, machine method & D 471	4.5.7 & 4.5.11
After immersion in water at 160 °F for: 14 days (lb/in, min)	10	D 413, machine method & D 471	4.5.7
42 days (lb/in, min)	8		

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.2).
- b. Conformance inspection (see 4.3).

4.2 First article inspection. The first article shall be examined as specified in 4.4. The presence of one or more defects during examination shall be cause for rejection of the first article. The first article shall be tested as specified in 4.5. Test samples shall be cut from the first article. Failure of any test shall be cause for rejection of the first article.

4.3 Conformance inspection. Lot sizes and sample selection from each lot for conformance inspection shall be in accordance with ANSI/ASQC Z1.4. The berm liner selected for each conformance inspection shall be examined as specified in 4.4. The tests under 4.5, shall be conducted on representative fabricated samples from the lot selected and not cut from the berm liner. The coated fabric tests shall be conducted on scraps from the lot under inspection. The seam test shall be conducted on test specimen fabricated by production personnel, using production equipment and scrap coated fabric from the lot under inspection. The presence of one or more defects during examination shall be cause for rejection of the lot.

4.4 Examination. Noncompliance with any specified shall constitute cause for rejection.

TABLE III. Examination schedule.

Examination	Description	Requirement paragraph
101	Materials and materials certification not as specified.	3.3 & 3.5.1
102	Berm liner dimensions not as specified.	3.4.1 & figure 1
103	Locations of handles not as specified.	3.4.2 & figure 1
104	Drain fittings and location of drain fittings not as specified.	3.4.3 & figure 1
105	Hose assembly not as specified.	3.4.4
106	Valve assembly not as specified.	3.4.5
107	Coated fabric is not free of blister, pinholes, or holidays and no evidence of delamination.	3.5.2
108	Splices and seams not as specified.	3.5.3
109	Lap joints and butt joints not as specified.	3.5.3
110	Color and finish not as specified.	3.7
111	Identification marking not as specified.	3.8
112	Emergency field repair kit not as specified.	3.9.1
113	Permanent field repair kit not as specified.	3.9.2

4.5 Testing.TABLE IV. Test schedule.

Item	First article	Quality conformance inspection	Test	Verification paragraph
<u>Coated fabric</u> Requirement paragraph 3.5.2 & table 1				
1	X	X	Tearing strength.	4.5.1
2	X	X	Breaking strength.	4.5.1
3	X	-	Weathering resistance.	4.5.2
4	X	-	Fungus resistance.	4.5.3
5	X	-	Low temperature.	4.5.4
6	X	-	Blocking.	4.5.5
7	X	-	Ozone.	4.5.6
8	X	X	Coating adhesion (initial)	4.5.7/4.5.7.1
9	X	-	Coating adhesion (14-day water immersion). (42-day water immersion).	4.5.7/4.5.7.1
10	X	-	Coating adhesion (14-day fuel immersion)	4.5.7/4.5.7.1
11	X	X	Puncture resistance.	4.5.8
12	X	-	Diffusion.	4.5.9
<u>Seams</u> Requirement paragraph 3.5.3 & table II				
13	X	X	Breaking strength (initial)	4.5.10
14	X	-	Breaking strength after 14 and 42days water immersion.	4.5.10
15	X	-	Breaking strength after 14 days fuel immersion.	4.5.10
16	X	-	Dead load shear resistance.	4.5.11
17	X	-	Peel adhesion (initial)	4.5.10
18	X	-	Peel adhesion after 14 and 42 days in water.	4.5.10
19	X	-	Peel adhesion after 14 days in fuel.	4.5.10
<u>Handles</u> Requirement paragraph 3.4.2				
20	X	-	Handle pull resistance.	4.5.12

4.5.1 Coated fabric. Coated fabric properties shall be tested in accordance with the test methods in table I. Nonconformance to 3.5.2 and table I shall constitute failure of this test.

4.5.2 Weathering resistance. During weather resistance testing, the exterior side of the berm liner sample shall face the light (see 6.4.6). The number of specimens shall be limited to 10 (5 in the warp direction and 5 in the fill direction). Testing shall be in accordance with ASTM D 750 or AATCC 111 as appropriate. Nonconformance with tables I shall constitute failure of this test.

4.5.3 Fungus resistance. The berm liner shall have no cracking, blistering or delamination and shall retain 60% of initial breaking strength when tested in accordance with AATCC 30.

4.5.4 Low temperature crease resistance. Immerse three coated fabric specimens, each 8 inches square, in JP-8 conforming to 4.5.13, and condition for 24 hours, +1 hour, at 73 ± 5 °F. Remove specimens, place on a wire screen, and air dry with forced air at 73 ± 5 °F, for 24 hours, +1 hour. Then, fold the specimens in half in each direction so that a folded corner occurs in the center of each specimen. Place each folded specimen under a 4-pound load and condition at -25 ± 2 °F (Type I) or -60 ± 2 °F (Type II), for 46 hours. At the end of the conditioning period, unfold the specimens while still at test temperature and examine visually. Signs of cracking, peeling, or delamination of any coating material shall constitute failure of this test.

4.5.5 Blocking. Place three coated fabric specimens 6.00 inches by 1.00 inch on a smooth surface in such a manner that the ends are overlapped 1.00 inch. Place a 4-pound weight directly on the overlapped areas. Place prepared specimens in an oven. After conditioning at a temperature of 158 ± 2 °F, for 4 hours, take the specimens from the oven, remove the weight, and condition for 1 hour at 73 ± 5 °F and 65 \pm 2 percent humidity. Attach one end of the specimen in a suitable clamping device, allowing the free end to hang down. Suspend a 4-ounce load from the free end of the specimens. Inability of the strips to separate within 5 seconds under the 4-ounce load shall constitute failure of this test.

4.5.6 Ozone resistance. Ozone resistance shall be tested as specified in ASTM D 1149. Test method A specimen shall be conditioned for 7 days at a temperature of 104 ± 4 °F in air having a partial pressure of ozone of 50 millipascals. Nonconformance to table I requirements shall constitute failure of the test.

4.5.7 Coating adhesion. Samples of coated fabric shall be bonded face-to-face to provide specimens for determining adhesion between the base fabric and exterior coating(s), between the base fabric and interior coating(s), between laminations of interior coatings and barrier, and between laminations of exterior coatings (see 6.4.5 and 6.4.6). In forming this bond the specimens shall be subjected to no heat or pressure other than that normally encountered in curing the coated fabric, except for minimal pressure necessary to ensure contact while the bond is setting.

4.5.7.1 Test procedure. The adhesion shall be determined in accordance with ASTM D 413, machine method, except that the specimens shall be 2 inches wide. The specimens shall be of sufficient length to conduct adhesion test for both initial values and after fuel (see 4.5.13) or water immersions. Immersion of specimens shall be in accordance with ASTM D 471. The

adhesion results obtained on each immersed specimen shall be compared with the initial adhesion of the same specimen to determine percentage of adhesion retained. The reported adhesion and percent retention shall be the average of not less than three specimens. Attempts shall be made to cut the coating back to the fabric and to determine the adhesion value at the coating to fabric interface. However, if a specimen separates at a plane other than the bond of the coating to fabric (such as between layers of coating materials or between barrier film and coating) the adhesion value and the plane of failure shall be recorded. Immersed specimens shall be conditioned in the test fluid at 73 ± 5 °F, for 30 to 90 minutes before testing. Testing shall be completed within 3 minutes after removal from the conditioning fluid. Nonconformance to 3.5.2 and table I shall constitute failure of this test. Any obvious bond failure evident after immersion but before stressing, even if the plane of failure is not sandwiched between the layers of fabric, shall constitute failure of this test.

4.5.8 Puncture resistance. ASTM D 751 applies except that the ring clamp mechanism shall have an internal diameter of 3.00 inches. Nonconformance to 3.5.2 and table I shall constitute failure of this test.

4.5.9 Diffusion. The test apparatus shall consist of a diffusion cup and ring, using figure 2 as a guide. Other cup designs are acceptable as long as the inside diameter of the cup and ring is maintained at 2.000 inches ± 0.016 -inch and the cup is 1.00 inch ± 0.06 -inch deep. Cut a circular test disk of coated fabric to conform to the outside diameter of the cup flange. Punch holes in the disk to correspond to the flange bolt dimensions as needed. The cup shall be filled with approximately 40 ml of water. A suitable solution shall be used to seal the exposed fabric around the outer edge of the test disk and to seal the test disk to the diffusion cup flange. The test disk shall be placed over the cup with the berm liner "exterior" side towards the water (see 6.4.6). The bolts shall be tightened securely. Place the diffusion cup in a suitable rack that permits free access of air to the test disk and condition at constant temperature of 73.3 ± 2 °F, and a relative humidity of 65 ± 2 percent. Allow 1 hour for the assembly to reach equilibrium, then weigh the cup to the nearest 0.005 gram and place in the rack, face upward. Keep the cup at the above constant temperature and humidity for 24 hours, then weigh and check for vapor loss. Retorque the bolts if necessary. Invert the cup (test disk down) in a rack to the test disk. Weigh the cup daily. Defective films or leaks caused by faulty assembly are usually found when the cup is weighed on the third day. Continue to weigh the cup daily until the weight loss is constant to within 0.010 grams per day after two 24 hour periods. Then record daily weight loss for a continuous interval of 72 hours. The diffusion rate (D) in fluid ounces per square foot per 24 hours shall be the average of not less than three specimens when calculated from the following expression:

$$D = \frac{144 (\text{average daily loss in grams})}{(\text{Sp. Gr.}) (29.573)(3.142)(R^2)}$$

Where Sp. Gr. is the specific gravity of the test medium and R^2 is the inside radius of the test cup.

4.5.10 Seam tests. The bonding together of any two or more pieces of coated fabric (such as lap joints, butt joints, coated fabric flanges of fittings, etc.) shall be considered seams and shall be subjected to all seam tests specified herein. The average breaking strength of five

specimens for each type seam, for each test, shall be reported for conformance to table II. Breaking strength specimens shall be 2.00 inches wide (parallel to the seam) and shall extend (perpendicular to the seam) 3.00 inches beyond both edges of the seam. Specimens shall be stabilized in the immersion fluids at 73 ± 5 °F, for 30 to 90 minutes before testing. Testing of immersed specimens shall be completed within 3 minutes after removal from the immersion fluids. The average peel adhesion strength of three specimens for each type seam shall be reported for conformance to table II. Peel adhesion specimens shall be of sufficient length to determine both the initial and after fuel (see 4.5.13) or water immersion values on the same specimen. If seam construction involves the use of binding thread, then the peel specimens shall be prepared with threads removed. All specimens shall break in the coated fabric. Failure of any specimen in a seam area shall constitute failure of this test. Nonconformance to 3.5.3 and table II shall constitute failure of this test.

4.5.11 Dead load shear resistance. The test specimens shall be 1.000 inch ± 0.020 -inch wide, (parallel to the seam) and coated fabric shall extend a minimum of 3.00 inches (perpendicular to the seam) on each side of the seam. One index mark shall be scribed on each side of the seam to facilitate observation and measurement of slippage. Each specimen shall be subjected to a constant (dead load) tension force of 50 ± 0.50 pounds, at 180 ± 5 °F. After 8 hours examine each specimen while still under tension for sign of slippage or separation. Three specimens shall be tested for each determination. Slippage, by any specimen, greater than specified in table II shall constitute failure of this test.

4.5.12 Handle pull resistance. The test sample shall consist of the handle and a minimum of 1 foot of berm liner body fabric extending in all directions from the handle. The body fabric shall be tightly drawn and clamped. The rigidity, strength, and construction of the clamp(s) shall be such that the berm liner body material shall not slip more than 0.50 inch at any point during the test. With the sample held securely, a tension shall be applied by a bar or pipe, 1 inch in diameter, inserted in the loop of the handle. The tension shall be slowly and smoothly applied in a direction perpendicular to the edge and parallel to the plane of the berm liner until the specified load of 500 pounds is reached. The 500-pound load shall be maintained for 1 minute. Any damage, permanent distortion, or separation of the handle, or berm liner material shall constitute failure of this test.

4.5.13 Test fuel. Unless otherwise specified, each applicable test requirement shall utilize two sets of test specimens in parallel. Diesel fuel (A-A-52557) shall be used as the test fluid for the first set of test specimens and JP-8 (MIL-DTL-83133) shall be used for the second set.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the

managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that is helpful, but is not mandatory.)

6.1 Intended use. The berm liners are intended for use as a secondary containment system under collapsible fabric fuel tanks. The berm liner is intended to retain spilled fuel in the event of a catastrophic failure and to prevent environmental damage. The berm liners are intended to provide a three-year service and a twelve-year shelf life.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Size of berm liner required (see 1.2).
- c. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2 and 2.3).
- d. When first article is required (see 3.2).
- e. When color is other than as specified (see 3.7).
- f. When Emergency Field Repair Kit is not required (see 3.9.1)
- g. When Permanent Field Repair Kit is not required (see 3.9.2)
- h. Packaging requirements (see section 5.1).

6.3 First article. When a first article inspection is required, the item(s) should be a pre-production model. The first article should consist of one unit. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of the first article test results and disposition of the first articles. Invitation for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product that has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is appropriate for the pending contract.

6.4 Definitions. The following definitions apply for this specification.

6.4.1 Recovered materials. For the purpose of this requirement, recovered materials are those materials that have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials.

6.4.2 Blister. A blister is a void or hole causing a protrusion on the berm liner surface when hot. It may not show when cold, and may be covered or open.

6.4.3 Holiday. A holiday is a place not covered by coating compound.

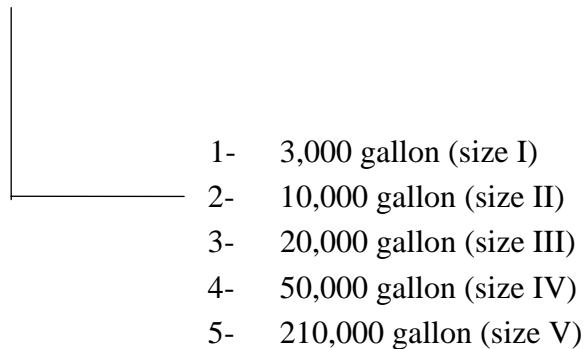
6.4.4 Pinhole. A pinhole is a minute circular void or solvent blow hole.

6.4.5 Interior. The interior side of the berm liner refers to the side designed to be in contact with the ground.

6.4.6 Exterior. The exterior side of the berm liner refers to the side designed to be in contact with the tank.

6.5 Part or identifying number. The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor. This example describes a part numbering system for specification ATPD-2262.

M-2262-2

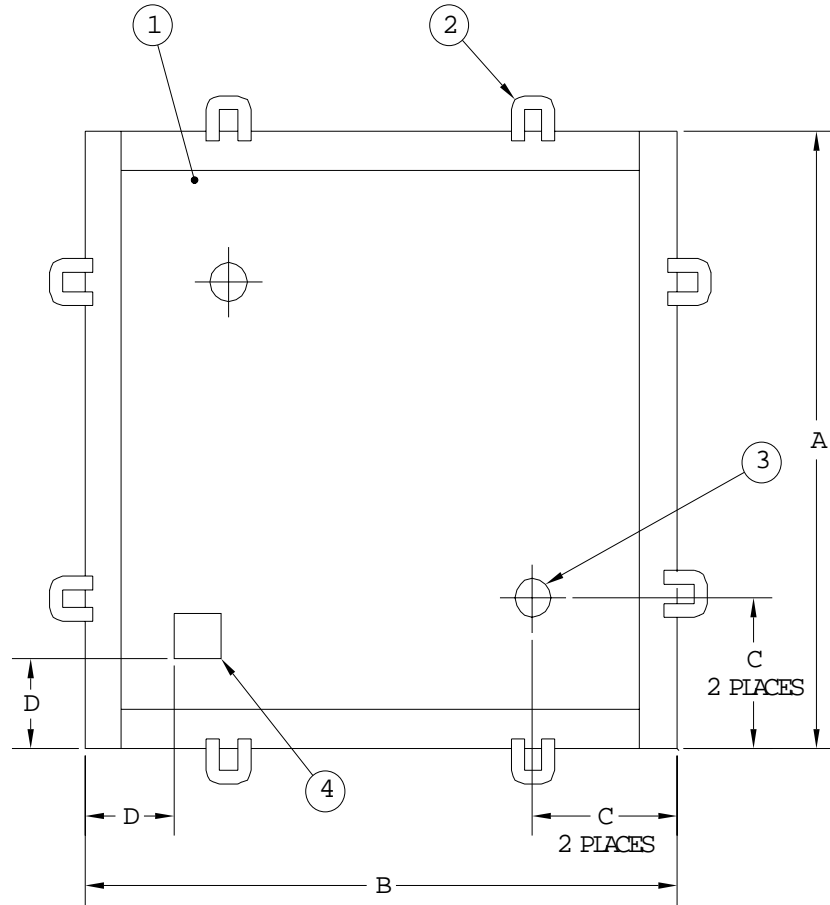


6.6 Subject term (key word) listing.

Berm liner
Collapsible tanks
Containment
Ground-cloth
Berm

Preparing activity:
Army-AT

ATPD 2262A
APPENDIX A



Item	Description	Quantity
1	Berm Liner	1
2	Handles	see 3.4.2
3	Drain	2
4	ID Label	1

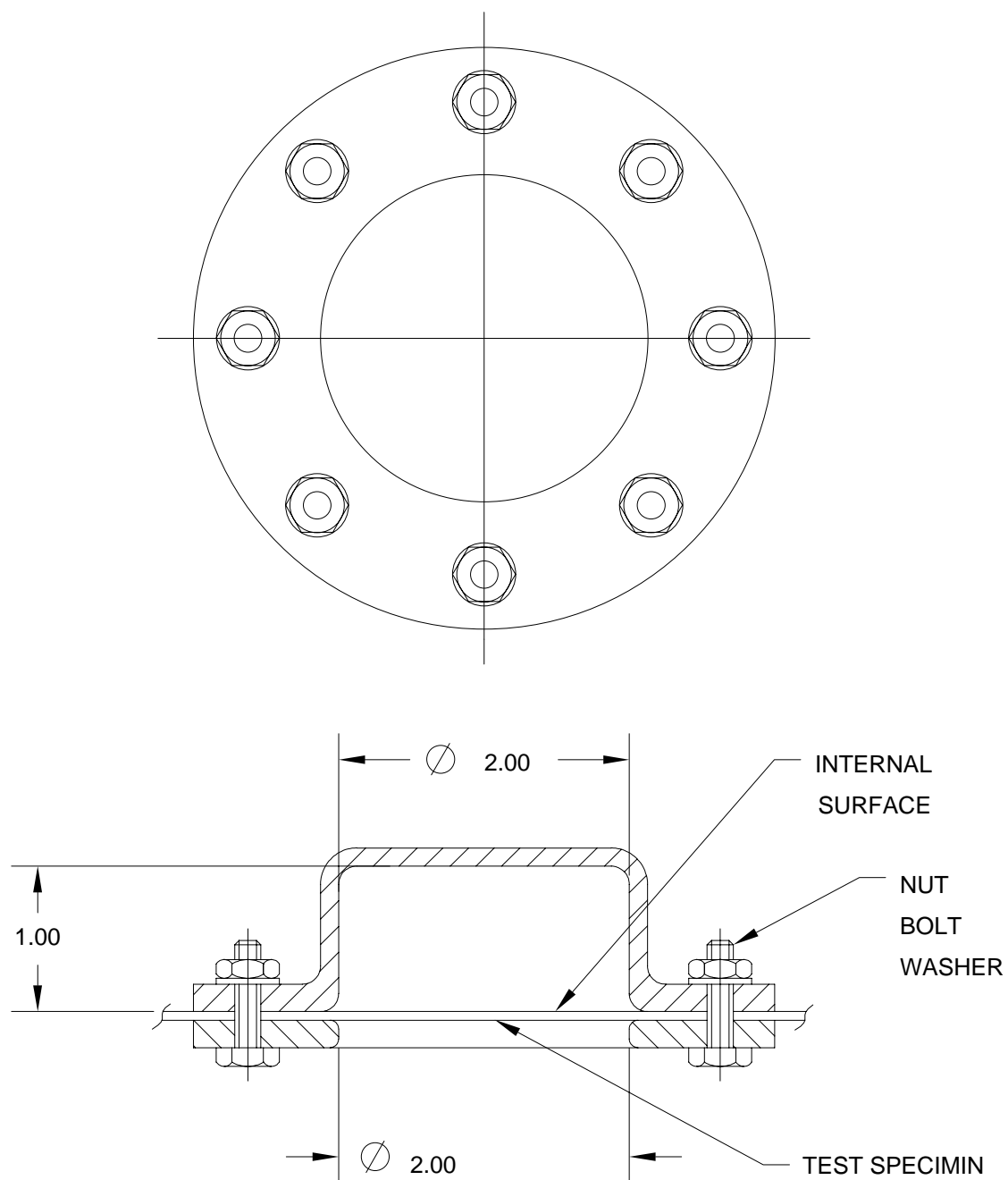
Size	Dimension A	Dimension B	Dimension C	Dimension D
I	37.0	37.0	10.0	1.50
II	52.5	52.5	13.0	1.50
III	65.0	65.0	14.0	1.50
IV	110.0	65.0	16.0	1.50
V	115.0	115.0	17.0	1.50

NOTES:

1. Dimensions are in feet.
2. Tolerance is: .x \pm 3.0 inches, .xx \pm 1.00 inches.

FIGURE A1. Berm liner sizes.

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NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified tolerance is ± 0.06 .

FIGURE A2. Diffusion cup assembly.